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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,177	02/25/2002	Ching Man Stanley Tsui	P/4076-19	5117

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1180 AVENUE OF THE AMERICAS  
NEW YORK, NY 100368403

EXAMINER

PATEL, PARESH H

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

03m

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/083,177	TSUI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Paresh Patel	2829	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/25/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
     a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/23/2003 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Regarding claim 12, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 8-14 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Gotman (US 4296542).

Regarding claims 1 and 8, Gotman discloses: a method and an apparatus for processing an unsingulated array of electronic components [array of chip 10-11 on wafer 15] comprising:

providing a mounting means [20, 21 of fig. 4] for mounting an unsingulated array of electronic components [Wafer 15]; then

singulating device [36 of 30 and device of fig. 15] for singulating the said array of electronic components; and then

testing device [90-91, lines 27-41 of column 6] operative to test each of the said singulated electronic components for defects;

whereby singulation and testing of singulated electronic components are conducted while they are mounted on the mounting means without removal therefrom [lines 30-39 of column 3 and fig. 11].

Regarding claims 2 and 9, Gotman discloses: an inscribing device [inherent to marking of rejected part, see lines 10-18 of column 1] for marking to distinguish non-

defective ones of the electronic components from defective ones while they are mounted on the mounting means.

Regarding claims 3 and 10, Gotman discloses: the singulation, testing and marking are carried out at two or more stations of the apparatus [using 30 for cutting and using 70 for testing/marketing].

Regarding claims 4 and 11, Gotman discloses: moving means for moving the electronic components for processing at least between the testing and marking positions [inherent to desired movement of 20 with 21, see lines 24-32 of column 3 because frame 21 and diaphragm 20 with wafer 15 remains together until chips are packaged].

Regarding claim 12, Gotman discloses: the moving means is adapted to move the electronic components in linear and rotary axes, such as an XYZ-Theta table [30 or 50 or 70].

Regarding claim 13, Gotman discloses: the mounting means comprises a film [20] of material having an adhesive [adhesive on 20] on one side and stretched [lines 6-23 of column 3] on a support frame [21], whereby electronic components are mountable on the adhesive side [lines 33-39 of column 3].

Regarding claim 14, Gotman discloses a vacuum chuck [34 with 32 and 71, see lines 45-47 of column 5] for holding in position the support frame and film.

Regarding claims 20 and 21, Gotman discloses discloses: the electronic component comprises molded semiconductor packages [10, 11 with 132].

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 15-16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gotman as applied to claims 1 and 8 above, and further in view of Atkins et al. (US 5570032).

Regarding claims 5 and 15-16, Gotman discloses all the elements except for the **orienting device (for detecting the alignment of electronic component before testing, of claims 5 and 15) is an image recognition vision system**. Atkins discloses the orienting device is an image recognition vision system [lines 16-21 of column 5]. It would have been obvious to person having ordinary skill in the art at the time of invention was made to modify the apparatus of Gotman to include image recognition vision system as taught by Atkins, in order to optically align the wafer components so components of the wafer can be tested at a greater accuracy.

9. Claims 6-7, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gotman as applied to claims 2, 1 and 9, 8 above, and further in view of Spanjer (US 4753863).

Regarding claims 6 and 17, Gotman discloses all the elements except for the inscribing device is a **laser device which generates a laser beam to mark a surface**

**of an electronic device by heating said surface.** Rather, Gotman discloses a laser beam (125) to provide necessary heating energy for completing the desired bond with substrate (120) and is silent about type of inscribing device/method used for marking. Spanjer discloses a laser device [11] which generates a laser beam [15a-b] to mark a surface [16] of an electronic device [18] by heating said surface [lines 27-31 of column 3]. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to include laser device of Spanjer with the apparatus of Gotman, in order to produce high contrast durable marking on the surface of the electronic component for identification purpose.

Regarding claims 7 and 18 Gotman discloses: the mounting means comprises a film of laser transparent tape [laser beam 125 on film 20] with an adhesive surface [lines 33-36 of column 3] on which electronic components are mountable.

Gotman discloses all the elements except for the laser device is operative to direct the laser beam generated thereby **through** the film toward the adhesive surface thereof to mark surface of the electronic component that is mounted on said adhesive. Spanjer in fig. 1-3 discloses the laser device is operative to direct the laser beam generated thereby **through** the film [through laser markable material e.g. clear coating or transparent coating, lines 49-51 of column 4]. It would have been obvious to a person having ordinary skill in the art at the time of the invention was made to use laser device of Spanjer operative to direct the laser beam generated thereby **through the film 20** of Gotman, in order to obtain laser marking on electronic component with high degree of color contrast and less degradation with time and temperature.

Regarding claim 19, Gotman discloses: an inverting device [device is inherent because downward facing of wafer 15 (see, lines 61-66 of column 4) and inverting of 21 and 20 (see lines 32-33 of column 5) requires inverting device] to invert the transparent tape to expose the surface of each electronic component that is mounted on said adhesive surface of the transparent tape to the laser device for marking.


### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art to Maeng et al. (US 6287878) in fig. 3 discloses unsingulated array of molded semiconductor packages (assembly of CSPs in strip at steps 110), marking at step 130, singulation at step 140 and Burn-in test at step 160.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 703-306-5859. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 703-308-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
Paresh Patel  
Nov. 30, 2003